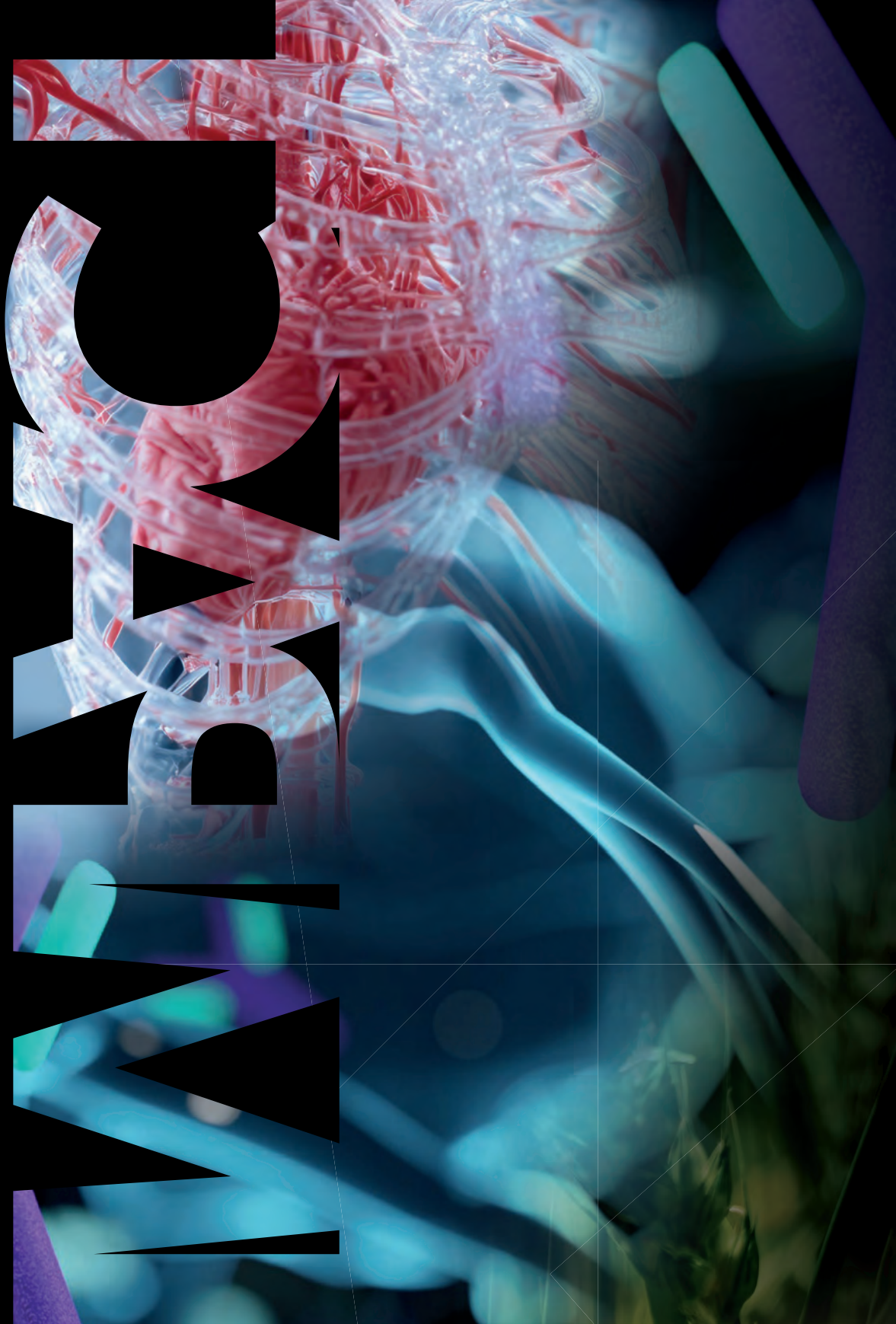




ANNUAL REVIEW 2025-2026





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CPI's Annual Review 2025-2026 is brought to you by:

Abi Sawyer, Craig Edwards, John George Bader, Louise Barker, Katie Richardson, and Becky Fields.

With additional contributions from Frank Millar, Dr Philip Probert, Dr Pari Datta, Dr Keri Goodwin, Dr Arun Harish, Alex Smith, Dr Tom Taylor, Baroness Evans, and Greig Rooney.

This has been a year of rising to many challenges, each demanding resilience, business discipline and clarity of purpose. I begin this Annual Review by recognising the commitment of our staff, customers and partners who have remained focused on what we are here to do: harness the UK's research and innovation system to deliver practical, meaningful impact that grows the UK economy, strengthens industrial competitiveness and improves people's lives.

Over the past year, we have continued to invest in areas where we believe CPI can make the biggest difference. We opened the Advanced Materials Battery Industrialisation Centre to help accelerate battery innovation, and we secured and launched the UK RNA Biofoundry to support the development and manufacture of next-generation RNA therapies. Alongside this, we continue to drive transformation across health technologies, sustainable materials, engineering biology and clean manufacturing by working with ambitious businesses and their investors, and through creative partnerships with industry, academia and fellow Catapults.

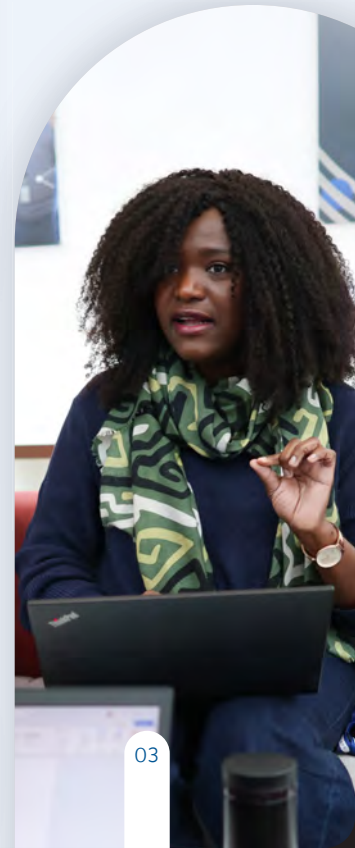
Our international networks continue to grow, creating new opportunities to support UK SMEs as they expand into emerging markets and technologies, extending our collective levels of ambition and challenge. At the same time, we continue to innovate within our own organisation through new investor partnerships, business models and public-private collaborations that strengthen our role as both a delivery partner and a catalyst for wider economic growth.

I remain proud of our commitment to diversity and the direct connection it has to our values and the strength of our brand in the business of innovation. Developing our talented people, while attracting new expertise, ensures CPI remains at the leading edge of technology and business practice. Our financial performance reflects disciplined cost management alongside continued investment in the capabilities needed for the future.

I believe this report demonstrates the value of CPI at a time when the UK needs more than good ideas; it needs the places, partnerships and capabilities that can help those ideas scale. That is the role CPI continues to play, and I remain confident in the contribution we can make in the years ahead.

A handwritten signature in black ink, appearing to read 'F. Millar'.

Frank Millar
Chief Executive Officer, CPI



Driving economic impact through purpose and innovation



Louise Barker
Director of Impact, CPI

At CPI, we often say that we obsess about impact because impact is our business. Everything we do is driven by our purpose of helping other companies succeed, and this is reflected in the breadth and depth of economic impact we deliver through our work each year.

Over the past financial year, we've proudly undertaken more than 1000 business support activities, engaging with organisations at every stage of the innovation journey. Through specialist technical events, workshops and one-to-one engagement, our teams have supported clients not only with deep technical expertise but also by sharing practical knowledge on navigating and engaging with the UK's innovation ecosystem. This combination of insight, experience and connectivity helps organisations access the right networks, funding opportunities and capabilities to progress their ambitions with confidence.

Alongside this activity, we delivered over 100 projects with clients, supporting them to accelerate progress through the

technology readiness levels (TRLs). These projects have helped ideas move from concept through development, scale-up and validation, taking them one step closer to commercialisation. Crucially, our work supports both successful outcomes and informed failure. Helping organisations to test, refine, and, where necessary, pivot or stop development is a vital part of a healthy innovation landscape, ensuring that time, investment and expertise are used effectively.

Through this focused and collaborative support, we play an active role in strengthening the UK's innovation economy. By enabling businesses to develop new products, processes and technologies, we're contributing to increased productivity, enhanced competitiveness and long-term growth. At the same time, many of the innovations we support directly address global challenges, helping to create a more vibrant economy, a cleaner environment and a healthier society.

This impact is delivered through our incredible teams and close collaboration with partners across industry, academia and government. Together, we're helping organisations turn ambition into action, ideas into solutions and innovation into lasting economic value.

1042

Business support
activities



66%

of which support
activities involved SMEs



41%

of projects moved
one or more TRL



156

Projects delivered



158

Products, processes,
or services developed



6

Products or processes
launched to market



353

professionals supported
in skills development





cpi

A decade of advanced biologics at CPI



Dr Philip Probert

Director of Biologics, RNA Centre of Excellence,
and Medicines Manufacturing Innovation Centre, CPI

In 1825, Darlington helped change the world. Crowds gathered near Skerne Bridge to witness an extraordinary moment in history: Locomotion No. 1 pulling the first passenger train along the Stockton and Darlington Railway. What began as an ambitious experiment to transport coal soon became a model for railway networks across the globe, transforming how people, goods and ideas moved between communities.

Two centuries later, Darlington is once again part of a story of industrial transformation. In 2025, the town celebrated not only 200 years of rail, but also 10 years of CPI's National Biologics Manufacturing Centre – a facility helping accelerate the development and manufacture of next-generation medicines.

This milestone was marked on 4 November 2025 with a 10th anniversary celebration event, bringing together partners, collaborators and colleagues who have contributed to the centre's journey, reflecting both on what has been achieved, and the role Darlington continues to play in shaping the future of biologics manufacturing.

While steam locomotives and biologic medicines may seem worlds apart, both represent moments when innovation reshaped the possibilities of their time. Today, biologics and advanced therapies are opening new frontiers in healthcare, offering the potential to treat diseases that were once thought untreatable.

Over the past decade, CPI's biologics centre has played an important role in helping the UK turn that scientific promise into practical capability.

Building a national capability

Construction of CPI's National Biologics Manufacturing Centre began in 2014 at Darlington's Central Park, supported by a £38 million investment from the UK government's Strategy for Life Sciences. When the centre opened in 2015, the goal was clear: to help the UK scale up the development and manufacture of complex biologic medicines.

Biologics, including monoclonal antibodies, vaccines and recombinant proteins, have become some of the most powerful tools in modern medicine. But they're also among the most complex therapies to develop and manufacture.

CPI was created to help bridge the gap between scientific discovery and industrial production. The biologics centre provides open-access facilities where companies, researchers and partners can collaborate to develop and scale innovative therapies.

Ten years on, the centre has grown from a team of just 16 people into a thriving hub of more than 90 scientists, engineers and specialists. Over the past decade, CPI's biologics team has worked with more than 220 organisations, delivering over 250 research and development projects valued at more than £97 million. Each year, the team supports around 40 new products or manufacturing processes for partners ranging from emerging biotech companies to global pharmaceutical organisations.

In recognition of its impact, the building was officially named the Nigel Perry Building in 2024, honouring CPI's founding CEO and the vision that helped establish the centre.

Collaboration driving innovation

A defining feature of CPI's work is collaboration. By providing a neutral, non-competitive environment, the centre enables organisations of all sizes to work together to overcome technical challenges and accelerate the development of new medicines. Over the past decade, these partnerships have supported a wide range of innovations.

Working with Touchlight Genetics, CPI helped scale a cell-free DNA technology platform that enables faster and more flexible production of genetic material used in advanced therapies and vaccines. In another project, CPI collaborated with Intracat Pharma, SGS Quay Pharma and Pharmidex on the Soteria programme, developing the world's first oral infliximab capsule for inflammatory bowel disease.

These examples demonstrate how shared expertise, infrastructure and collaboration can help transform promising scientific ideas into real-world medical solutions.

Transforming how biologics are manufactured

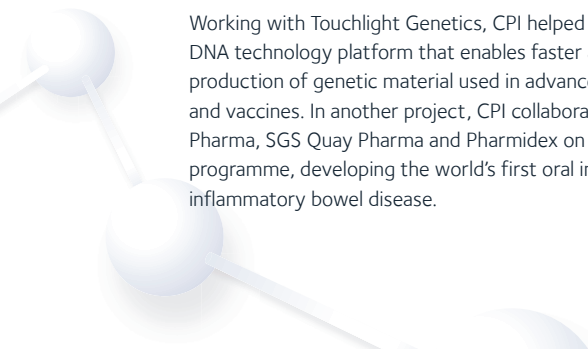
Alongside advances in therapeutic science, the technologies used to manufacture biologics have also evolved significantly over the past decade.

Traditional biologics manufacturing relied heavily on large, resource-intensive batch processes. Today, the industry is increasingly adopting more agile and efficient approaches, including process intensification, continuous bioprocessing, and digitally-enabled manufacturing systems.

Process intensification enables manufacturers to produce more product from smaller systems by increasing productivity within bioreactors and integrating downstream processing steps. Continuous manufacturing approaches streamline production workflows, enabling greater consistency and efficiency.

Together, these approaches can significantly increase productivity while reducing manufacturing costs and facility footprint. Smaller, more efficient facilities also bring important sustainability benefits, reducing energy use, water consumption and waste.

Digital technologies are further accelerating this transformation. Real-time monitoring, automation and advanced data analytics





enable manufacturers to monitor processes continuously, optimise performance and make faster, data-driven decisions.

At CPI, integrated testbeds for intensified and continuous bioprocessing allow companies to evaluate and de-risk these new manufacturing approaches before adopting them at commercial scale. This helps partners reduce technical risk, improve process performance and bring new therapies to patients more quickly.

Anchoring regional innovation

While CPI's work in this area has global reach, its roots remain firmly in Darlington and the wider Tees Valley. Over the past decade, the biologics centre has helped strengthen the region's life sciences ecosystem through partnerships with organisations such as Fujifilm Diosynth Biotechnologies and Teesside University's National Horizons Centre.

These collaborations support skills development, attract investment and create high-value jobs, helping ensure that innovation delivers tangible benefits for local communities.

This regional impact reflects a long-standing tradition of industrial progress in Darlington. Just as the Stockton and Darlington Railway helped transform the town into a hub of engineering and manufacturing in the 19th century, today's life sciences

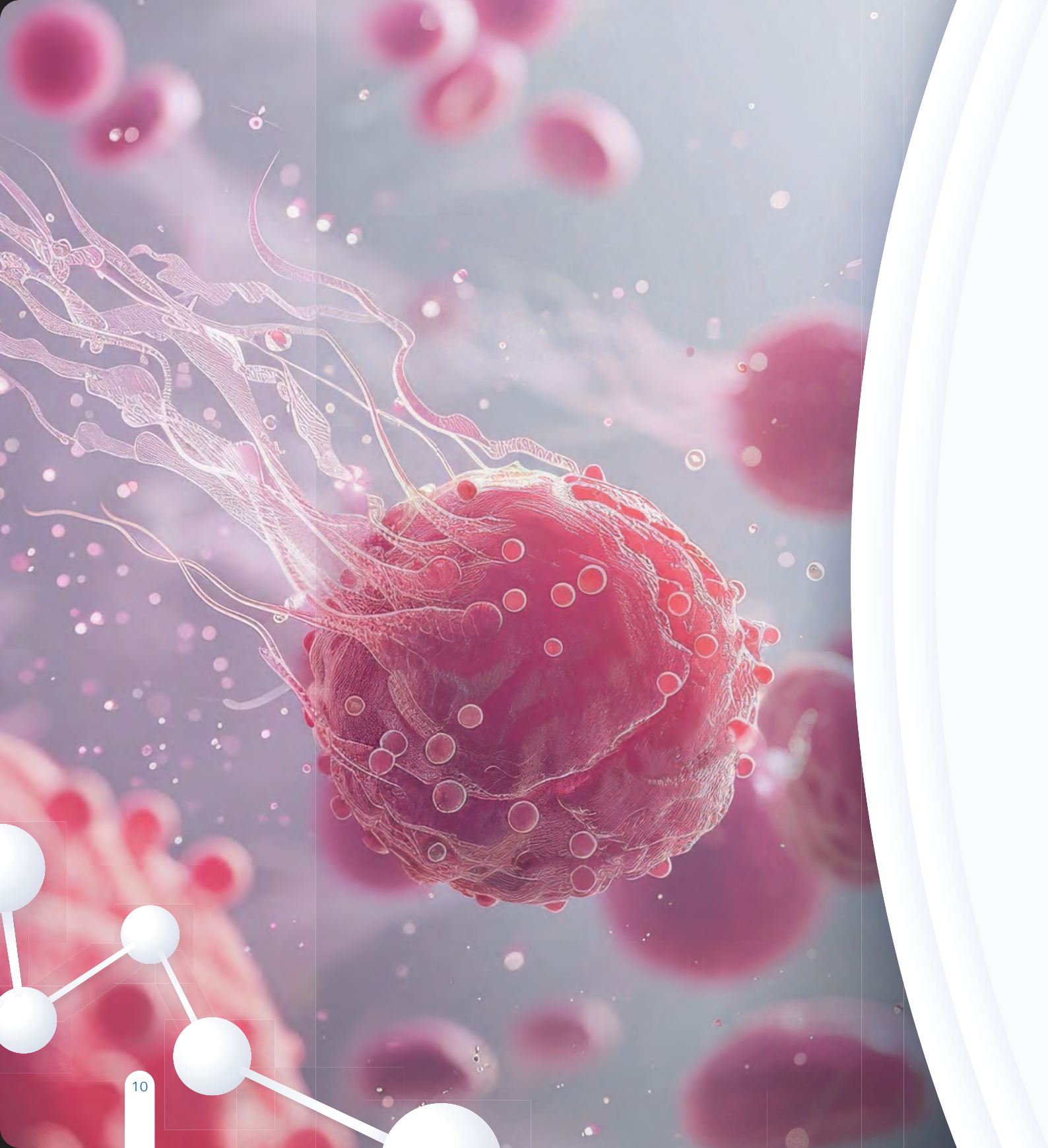
infrastructure is helping position the region at the forefront of modern biotechnology.

Looking to the future

Ten years after the opening of CPI's National Biologics Manufacturing Centre, the pace of innovation in biologics shows no sign of slowing. New therapeutic approaches, advances in digital technologies and more sustainable manufacturing methods are continuing to reshape how medicines are developed and produced.

For the UK, maintaining leadership in this rapidly evolving field will require continued investment in infrastructure, skills and collaboration. CPI's biologics centre was established to help deliver exactly that – providing the capabilities, partnerships and expertise needed to translate scientific breakthroughs into real-world medicines.

As Darlington celebrates two centuries since the first railway journey, it is fitting that the town continues to play a role in shaping the future of industry and innovation. From steam locomotives to advanced biologics, the spirit of experimentation and progress that defined Darlington's past continues to drive its future. And after a decade of biologics innovation at CPI, the journey is only just beginning.



Verinnogen

Scaling up precision tools to transform cancer research

Cancer research

MedTech

The challenge

In preclinical cancer research, accurately tracking tumour response to treatment is essential for evaluating the effectiveness of new therapies. However, the current standard method that uses handheld callipers relies on limited linear measurements of complex 3D tumours, requires extensive training, and is prone to human error. These limitations slow progress, add cost, and risk delaying the development of life-saving treatments. Cambridge-based start-up Verinnogen set out to address this with a handheld device capable of delivering precise, repeatable 3D tumour measurements.

Our support and achievements

CPI worked with Verinnogen, with support from Innovate UK Business Growth's RTO/Catapult grant scheme, to help scale up manufacturing of a critical component of its device: an array of phosphorescent pins whose uniform glow is essential to measurement accuracy. CPI reformulated the phosphorescent material, validated its performance, and developed a robust, semi-automated production process, supporting both manual and automated dispensing. This work reduced variability, improved consistency, enabled the production of thousands of prototype pins, and helped move the TRL from 2 to 5.

Impact

Verinnogen's device has the potential to transform how researchers assess tumour response to treatment in preclinical studies. By delivering accurate, repeatable 3D measurements, the device enhances data quality and accelerates the development of new cancer therapies, potentially helping bring effective treatments to patients faster and more efficiently.

Our support has played a pivotal role in advancing this innovation towards commercial readiness. By developing a consistent, scalable process for producing the device's pins, we helped Verinnogen reduce production time, improve reliability, and seed pre-production devices with research partners in their target market – moving the technology to pilot scale.

This progress marks a significant leap from early-stage prototyping to a commercially viable process, a key milestone that unlocks further funding and grows the business. The momentum was further strengthened by a £500,000 investment from CPI Enterprises through the Innovate UK Catapult Investment Pilot programme.

With a robust manufacturing approach in place, Verinnogen is now well-positioned to scale its operations and expand its reach across the cancer research community. Our work with Verinnogen has set the stage for full automation in future production and even greater cost savings.



CPI's flexible approach has helped us adapt at each stage as we progressed from lab-based R&D through to production at scale using our innovative, sustainable and modular manufacturing approach. Our relationship with CPI has been crucial to Pragmatic's development and remains a key part of our strategy for the coming years.



Dr Richard Price

| Pragmatic Semiconductor



Verinnogen prototyped a manual process requiring high levels of skill and long periods of time to provide consistent outputs. CPI helped us by using their skilled and capable resources combined with their knowledge of materials, formulation and dispensing, to upgrade the process to one that is now capable of improved consistency, aligning with corporate growth targets.

Dr Mike Irvine

| Verinnogen



verinnogen



Getting next-generation cancer diagnostics to patients faster for improved outcomes



Dr Pari Datta
Head of Technology Strategy, CPI

Early detection remains one of the most powerful ways to improve cancer outcomes. Yet in the UK, around half of cancers are still diagnosed too late for optimal treatment. At the same time, advances in areas such as circulating tumour DNA (ctDNA), proteomics and multi-omics analysis are opening up new possibilities for earlier and more precise diagnosis. While the scientific potential for diagnostics is vast, the challenge lies in the translation of these promising technologies.

Despite a strong UK research base, many promising diagnostic technologies fail to progress beyond the lab. Fragmented development pathways, inconsistent standards, and complex adoption routes mean innovation is often slow to reach patients. For industry, the risks associated with scaling and validating new diagnostics can be prohibitive. For healthcare systems, uncertainty around implementation and impact can delay uptake.

To address these challenges, CPI is leading the Next-Generation Cancer Diagnostics programme (NG-Dx), a £5 million initiative funded by the Office for Life Sciences. Launched in January 2026, the 18-month programme brings together industry, clinicians, patients and technology providers in a coordinated, pre-competitive effort to accelerate early cancer detection.

NG-Dx is designed to tackle the systemic barriers that have historically limited progress. Rather than treating adoption as a downstream consideration, the programme builds clinical, patient,



and commercial considerations into programme design from the outset. This ensures that innovation is both scientifically robust and viable in real-world healthcare settings.

At the heart of the programme is a focus on building the foundations required for scalable, clinically-relevant diagnostics. During its first phase, NG-Dx is developing optimised, standardised sample preparation workflows for ctDNA and proteomic analysis, which are critical to ensuring the reliability and reproducibility of early-stage biomarker detection. Alongside this, the programme is establishing a multi-omics data architecture, supported by an AI-enabled quality control model, to enable the integration and interpretation of complex datasets at scale.

These technical outputs are being shaped through continuous engagement with scientific, clinical, industrial and patient communities. Structured panels and governance ensure that development is guided by four core requirements: scientific robustness, clinical utility, industry investment potential, and

patient trust and acceptance. This approach helps ensure that outputs are not only technically sound, but also meaningful, implementable and investable.

A key differentiator of NG-Dx is its focus on translation as a shared challenge. By creating a pre-competitive environment, the programme enables organisations to collaborate on common barriers while retaining the ability to compete at the product level. This reduces duplication, aligns standards and accelerates progress across the ecosystem.

Industry engagement is central to this model. Partners from diagnostics, pharmaceuticals and digital technology are actively shaping programme outputs and contributing to workflow design, technology assessment and data architecture development. This early involvement helps build confidence in the pathway from innovation to adoption, strengthening the business case for future investment and commercialisation.

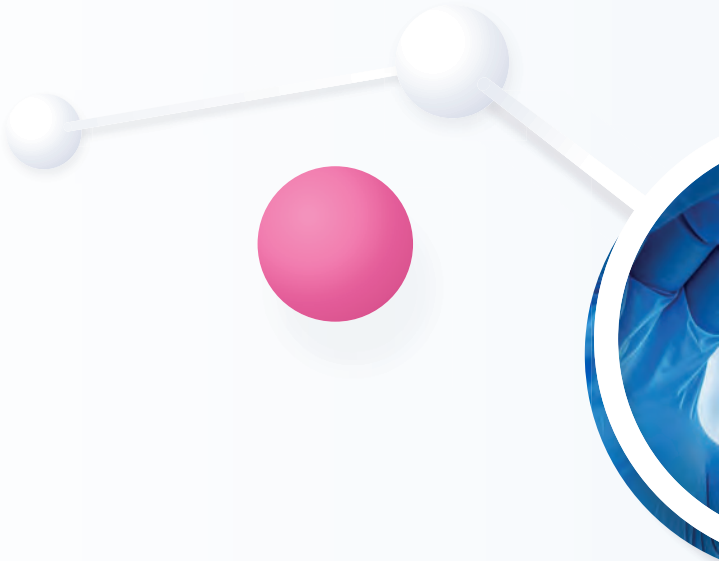
For government and funders, NG-Dx provides a mechanism to demonstrate clear return on public investment. By aligning with NHS priorities and national life sciences strategy, the programme supports both improved patient outcomes and economic growth. It also positions the UK as a global leader in next-generation diagnostics, with the potential to attract additional private-sector investment and international collaboration.

For patients and the public, the programme places a strong emphasis on transparency and trust. Engagement is embedded throughout, ensuring that factors such as accessibility, equitable access, and the burden of testing are considered alongside technical performance. This is critical to building confidence in new diagnostic approaches and supporting widespread adoption.

As the programme progresses, NG-Dx will generate a series of tangible outputs, including standardised workflows, technical feasibility studies and data frameworks, alongside a growing partner ecosystem and evidence base. These will support the transition into future phases focused on clinical translation, validation and scale-up.

By connecting scientific innovation with real-world application, CPI is helping to unlock the full potential of next-generation diagnostics. In doing so, we support a future where cancer is detected earlier, treatment decisions are better informed, and more patients benefit from timely, effective care.





Building the UK's RNA capability



Dr Philip Probert

Director of Biologics, RNA Centre of Excellence,
and Medicines Manufacturing Innovation Centre, CPI

RNA technologies are transforming what's possible in modern medicine. From vaccines developed in record time to therapies that train the body to fight cancer or rare diseases, RNA has opened the door to a new generation of treatments that are faster to design, more adaptable and increasingly personalised.

The success of mRNA vaccines during the COVID-19 pandemic demonstrated the power of this technology on a global stage. But it also highlighted an equally important need: for countries to have the capability to develop and manufacture advanced medicines within their own borders.

At CPI, we recognised RNA's potential early. Over the past decade, we have built capabilities, facilities and expertise that now position the UK at the forefront of RNA innovation. From supporting the national pandemic response to developing new infrastructure, training the workforce and connecting the RNA

ecosystem, CPI is helping ensure the UK remains a global leader in this rapidly evolving field.

From pandemic response to long-term capability

During the COVID-19 pandemic, RNA technologies proved their value in an unprecedented way. The ability to design, develop and manufacture vaccines quickly became essential to protecting public health.

CPI played an important role in that effort. As part of the UK Government's Vaccine Taskforce, CPI worked with partners including Imperial College London to support the development and scale-up of RNA vaccine candidates. This demonstrated both the potential of RNA technologies and the importance of having the infrastructure and expertise available to respond quickly when needed.

That experience helped shape the next phase of investment in the UK's RNA capability. In 2022, CPI announced the creation of



a new RNA Training Academy, supported by £10.65 million of funding from the Vaccine Taskforce. The initiative was designed to address a growing challenge for the life sciences sector: the shortage of skilled professionals able to develop and manufacture RNA medicines.

The following year, CPI opened the £26.4 million RNA Centre of Excellence in Darlington, building on the capabilities of its National Biologics Manufacturing Centre. The facility was designed to accelerate the development, scale-up and manufacture of next-generation RNA vaccines and therapies.

Together, these investments created a unique national capability combining research, process development, manufacturing and workforce development in a single location.

A national hub for RNA innovation

The RNA Centre of Excellence provides open-access infrastructure that enables academic researchers, biotech companies, and pharmaceutical organisations to advance promising RNA innovations towards clinical trials.

At launch, the centre became the only open-access facility in the UK capable of producing lipid nanoparticle-encapsulated messenger RNA (mRNA) and self-amplifying RNA (saRNA) therapies for early-phase clinical studies with an MIA (IMP) licence from the MHRA approved in 2024. The facility integrates product development, process development, scale-up and clinical production on a single site – helping innovators move from discovery to clinical manufacture more efficiently and playing a critical role in bridging the gap between scientific discovery and real-world medicines.

During this year, material produced at the centre was used in clinical trials for the first time, marking an important milestone in translating its capabilities into real-world support for innovators. The centre is also designed with flexibility in mind. RNA technologies enable the rapid development of new vaccines and therapies and their adaptation to emerging health threats. If required during a future health emergency, the facility has the capacity to produce millions of vaccine doses to support a rapid national response.

Just as importantly, the centre enables organisations across the life sciences sector to explore new applications of RNA

technologies, from vaccines for infectious diseases to emerging areas such as personalised cancer immunotherapies.

Accelerating innovation through the UK RNA Biofoundry

The UK's commitment to strengthening its RNA capability took a further step forward in 2025 when the government selected CPI to host the UK RNA Biofoundry, backed by £29.6 million of investment from the Office for Life Sciences and delivered through Innovate UK.

Located within CPI's RNA Centre of Excellence, the Biofoundry will act as a national hub for RNA innovation and manufacturing. Its purpose is to help researchers and companies translate promising RNA science into clinical-grade materials more quickly and efficiently.

Manufacturing RNA suitable for early-phase clinical trials can be costly and technically complex. As a result, many promising therapies struggle to progress beyond the laboratory stage.

The UK RNA Biofoundry is designed to address this challenge by

providing an integrated platform that combines next-generation, automated manufacturing approaches that enable organisations to move seamlessly from research to clinical production. The Biofoundry will significantly reduce the time and risk involved in developing new RNA medicines.

This Biofoundry will be the first node of a global network of modular RNA Biofoundries, established as part of the industrialisation phase of the international R3 Global programme, designed to transform how advanced RNA therapies are developed and manufactured worldwide.

Together, these capabilities will help position the UK as a leader in next-generation RNA medicines while strengthening the resilience of the national health innovation system.

Bringing the RNA community together

Innovation in advanced therapies depends on collaboration across academia, industry and government. To support this, CPI convenes leaders from across the global RNA ecosystem through its RNA Vaccines and Therapeutics Conference, hosted annually with partners Imperial College London and the BioIndustry Association.





The event brings together scientists, biotech companies, pharmaceutical organisations and policymakers to discuss the latest advances in RNA science and explore opportunities for collaboration. The conference also explores how RNA technologies can be scaled and shared globally, with a focus on supporting low- and middle-income countries in building capacity and ensuring equitable access to RNA-based medicines and vaccines.

As the field continues to evolve rapidly, forums like this play an important role in ensuring the UK remains connected to the global conversation around RNA innovation and at the forefront of RNA manufacturing innovation.

Developing the workforce for RNA manufacturing

Infrastructure alone cannot deliver the promise of RNA technologies. A skilled workforce is equally essential. As RNA therapeutics move from research into widespread clinical use, demand for scientists, engineers and manufacturing specialists

with RNA expertise is increasing rapidly. Universities are only beginning to introduce dedicated teaching and training programmes, leaving a short-term skills gap that the CPI RNA Training Academy is designed to address.

CPI's Training Academy offers a range of CPD-accredited courses, delivered by in-house experts and guided by an advisory committee of leading specialists from academia and industry. The training is designed to support professionals at all levels, from those building a foundational understanding to scientists and engineers working directly in RNA manufacturing. CPI also provides tailored programmes for entire teams, with flexible delivery either at CPI's facilities or on-site at company laboratories and manufacturing sites using their own equipment.

Participants from around the world are already benefitting from this initiative. One team from Monash University, Australia described their experience working with CPI's training team as highly positive, noting: "We had great engagement from the team at CPI. They were very friendly, approachable and knowledgeable."

By building international capability and developing the skilled workforce needed for RNA innovation, the RNA Training Academy is strengthening the UK's leadership in this rapidly growing field.

Looking ahead

RNA technologies remain at an early stage of their potential. Over the coming decades, they're expected to transform the treatment of infectious diseases, cancer and many other conditions that currently have limited therapeutic options.

For the UK, maintaining leadership in this field will require continued investment in infrastructure, skills and collaboration. Through the RNA Centre of Excellence, the UK RNA Biofoundry, the RNA Training Academy and its convening role within the scientific community, CPI is helping build the foundations for that future.

The legacy of the COVID-19 pandemic showed what is possible when science, industry and government work together at pace. By continuing to strengthen the UK's RNA capability, we can ensure that the next generation of RNA medicines reaches patients faster and that the country remains ready to respond to the health challenges of tomorrow.





Find out more

uk-cpi.com/case-studies/theraphix



RNAassist

Developing a thermostable solution
to transport RNA vaccines

RNA vaccines

Formulation innovation

Global health

The challenge

The rapid development of RNA vaccines has transformed global healthcare, but their sensitivity to heat means long-term storage and transport typically require ultra low temperatures of around -50°C . This is significantly colder than the cold chains used for conventional vaccines, making distribution more costly, energy-intensive and difficult to deliver at scale, particularly in regions with limited infrastructure.

Our support and achievements

CPI worked with RNAassist to develop a thermostable formulation, TheraPHIX™, that enables RNA vaccines encapsulated in lipid nanoparticles (LNPs) to be stored without the need for freezing. Using deep eutectic solvents (DES) and drawing on facilities and expertise at our National Formulation Centre and National Biologics Manufacturing Centre, we developed and tested two stabilisation workflows – internal and external DES – demonstrating their effects and establishing scalable, reproducible processes.

Impact

The development of TheraPHIX™ as a way to store vaccines without freezing or refrigeration could revolutionise global vaccine distribution. Plus, having two methods for DES incorporation gives RNA vaccine and therapeutic manufacturers flexibility in deciding when and how to incorporate DES into their formulation.

The success of CPI's collaboration on TheraPHIX™ has led RNAassist to file IP patents for the application of this technology and launch a range of stabilisation reagents for RNA-LNPs to market.

RNA vaccine manufacturers using TheraPHIX™ will be able to keep vaccines viable at ambient temperatures, eliminating the need for large, heavy refrigeration units on journeys into tropical and equatorial countries with high heat and humidity. This could radically increase vaccine coverage in isolated communities in lower- and middle-income countries, ultimately improving vaccine equity.

The COVID-19 pandemic showed we have the tools to vaccinate countless people worldwide. The challenge is getting them to hard-to-reach communities. Our work with RNAassist on TheraPHIX™ has the potential to improve the lives of even more people worldwide and halt the spread of future epidemics or pandemics faster.

Q&A with **Greig Rooney**

Managing Director
Pharma & HealthTech, CPI



Greig Rooney is an accomplished life sciences leader with over 20 years' experience across pharmaceuticals, vaccines and biomanufacturing. He joined CPI in January 2026 as Managing Director for Pharma and HealthTech, becoming a member of the Executive Leadership Team to drive innovation, scale-up and impact across the UK health ecosystem.

What attracted you to CPI?

Its unique position at the intersection of innovation, manufacturing, policy and patient need. It brings together academia, industry and the third sector in a way that allows us to deliver meaningful impact.

The opportunity to help shape CPI's pharma and HealthTech portfolio at a time of significant change across the sector was incredibly compelling. It's a chance to contribute not only to scientific and industrial progress, but ultimately to better outcomes for patients and for the UK economy.

What's the current direction of travel for the pharma and HealthTech sectors?

Globally and in the UK, manufacturing's share of GDP has declined significantly over the past 50 years, from around 30% in the 1970s to roughly 8% today. Despite that, it still contributes over £200 billion annually to the UK economy, so it remains critically important.

From a policy perspective, the UK government's Life Sciences Sector Plan sets out an ambition to position the UK as a leading life sciences economy in Europe by 2030 and third globally by 2035, behind the USA and China.

There is a clear national ambition to strengthen advanced manufacturing, attract investment and translate world-class research into economic and societal impact. That's something I'm keen for CPI to play a key role in supporting and delivering.

How does CPI contribute to this growth?

CPI plays a vital role in bridging the gap between innovation and commercialisation. We help companies de-risk scale-up, reduce time-to-market and build manufacturing capability that anchors long-term value in the UK. This includes supporting SMEs to become investable and scalable, as well as enabling larger companies to establish and grow advanced manufacturing capabilities.

We also work closely with government and funding bodies to translate policy ambition into real-world industrial outcomes. Ultimately, our work drives job creation, economic growth and faster access to new products and technologies for patients, strengthening the UK's global competitiveness.

How important is patient advocacy in shaping innovation?

Patient advocacy is absolutely central. Innovation should always lead to improved patient outcomes or accessibility, and if it doesn't, we need to challenge whether we're truly delivering on our purpose.

At CPI, we can embed patient-centric thinking early in the innovation process, considering usability, adoption, sustainability and where unmet need is greatest. Even though we aren't a clinical organisation, there's always a patient at the end of the journey.

Through my role as Chair of the Scottish Patient Awareness Council, I've seen first-hand the value of bringing together industry, academia and the third sector around a shared focus on the patient. That collaboration has already created new opportunities and partnerships that might not have emerged otherwise.

How can CPI support Scotland's growth in life sciences?

Scotland has an ambitious Life Sciences Sector Plan, aiming to grow revenue from £10 billion to £25 billion by 2035.

A key pillar of that strategy is scaling companies effectively. CPI, and particularly our Medicines Manufacturing Innovation Centre, has a crucial role to play in supporting that journey.

We can help companies move from early-stage research through pilot and scale-up phases to full commercialisation, using our facilities, expertise and talent. By working alongside partners such as Scottish Enterprise, we can help turn that ambition into reality.

Why is CPI's work so important?

CPI's impact operates across three interconnected levels: economic, societal and environmental. Economically, we help build high-value, resilient UK industries by supporting company growth and skills development, attracting inward investment, and contributing to productivity and GDP.

From a health perspective, we enable the development and

manufacture of better medicines and technologies, improving reliability, scalability and speed to market so innovations reach patients faster and more effectively. Environmentally, we seek to reduce solvent use, and minimise toxic materials and emissions. Together, these outcomes strongly underpin CPI's core purpose.

Where are the biggest opportunities for CPI over the next 3 years?

There are several key areas of opportunity:

- **Advanced therapies and novel modalities** – including personalised medicines and data-driven healthcare solutions.
- **Digital and AI-enabled health technologies** – particularly in diagnosis and treatment optimisation.
- **Sustainable scale-up and manufacturing** – helping companies grow efficiently and responsibly.
- **Access to infrastructure** – providing facilities such as clean rooms and labs that reduce cost and time barriers for companies.

By offering both expertise and ready-to-use infrastructure, CPI can significantly shorten the journey from concept to market.

What does success look like for CPI over the next 3–5 years?

For industry and the UK, CPI is recognised as a trusted partner of choice, working with government, industry and funding bodies to deliver high-impact programmes that support growth, resilience and innovation.

For patients, innovations supported by CPI lead to measurable improvements: faster access to treatments, better health outcomes and improved quality of life.

For our people, we create an environment where talented individuals can thrive, develop and continue delivering outstanding results.

If we achieve all three, then CPI will have delivered on its mission.





CPI has been an outstanding partner to work with. Their team brings deep scientific and engineering expertise, but always with a clear focus on how ideas translate into real-world manufacturing and commercial scale. As founder of The Daughters of Mars developing novel women's health technology, it has been incredibly valuable to work alongside scientists who are both rigorous and pragmatic in their thinking. CPI has helped us explore practical pathways for translating our menstrual product coating innovation for proactive vaginal health into something that can ultimately reach millions of women.

Lucy Hope

| The Daughters of Mars



THE DAUGHTERS *of* MARS

Creating an inclusive culture that strengthens innovation



Katie Richardson
Impact Manager, CPI

At CPI, diversity and inclusion (D&I) are integral to how we operate and how we innovate. Diverse perspectives, experiences and ways of thinking are essential to solving complex challenges, strengthening decision making and delivering meaningful impact as an innovation centre. Over the past year, CPI has continued to build an environment where difference is valued, people feel safe to contribute, and inclusion supports both performance and progress.

Affinity groups: Delivering impact through inclusion

CPI's affinity groups are employee-led communities that support this inclusive culture by creating trusted spaces for dialogue, learning and connection. Across the year, they have played an important role in amplifying employee voices, strengthening belonging and helping us better understand the lived experiences of our people.

CPI currently supports four affinity groups:

- **Women in CPI (WiCPI)** – with three linked subgroups focused on supporting and empowering women's personal and professional development.
- **PRISM** – a network for LGBTQ+ colleagues and allies that celebrates LGBTQ+ identities, promotes allyship and raises awareness.
- **EmBRACE** – a group focused on race, religion, culture and ethnicity, supporting equity of opportunity and a safe working environment for all.



- **ANCHOR** – a community supporting neurodiversity, caregivers, mental health, accessibility needs, and hidden and chronic illnesses.

Together, these groups provide insight to help CPI shape priorities, strengthen culture and embed inclusion into everyday working life, ultimately creating the conditions in which innovation can thrive.

Our impact at a glance (March 2025 – March 2026)

- 4 affinity groups, with 74 active members.
- 47 knowledge-sharing articles published internally.
- 2 hosted events.
- 9 cultural and religious occasions recognised.
- 6 mentoring relationships established.

Championing psychological safety and belonging

Through regular engagement, affinity groups have supported psychological safety by encouraging open dialogue, respectful challenge and shared learning. These environments enable colleagues to feel seen, heard and valued, providing conditions that support wellbeing, confidence and collaboration across teams.

Key contributions include:

- Building communities that support employee wellbeing and connection.
- Raising engagement and awareness through articles, events and targeted communications.
- Organisation-wide recognition of culturally and religiously significant moments, including Holi, Ramadan, Easter and Lohri.

- Developing practical support networks for key life transitions, such as welcome-back calls following maternity leave and parenting networks to reduce isolation and share experiences.

Sharing learning and extending impact beyond CPI

Affinity groups also contribute to CPI's learning beyond internal communities, helping share best practice and strengthen external partnerships across the sector. This outward looking approach supports CPI's role within the wider life sciences ecosystem and reinforces inclusive innovation.

Highlights from the year include:

- WiCPI's International Women's Day panel, "Accelerating Action: Supporting Women Founders to Succeed", which brought together founders and senior leaders to explore barriers, opportunities and actions to support entrepreneurial success.
- PRISM's role as a founding member of the Cross-Catapult LGBTQ+ affinity group and participation in the Proud Science

Alliance, widening access to shared learning, resources and collaboration.

Building inclusive capability and leadership

Supported by CPI's leadership team, affinity groups have helped translate inclusion from intent into practical action. Over the past year, this has included initiatives to build inclusive capability, confidence, and leadership skills, which are all key enablers of innovation and retention.

Notable initiatives include:

- A reverse mentoring pilot programme, pairing colleagues with senior leaders to explore complex D&I topics. The programme strengthened mutual understanding, challenged assumptions and supported more inclusive leadership and decision making.
- Skill building programmes, including networking masterclasses and the Springboard development programme, supporting confidence, personal effectiveness and leadership capability.
- A series of inspirational role model articles highlighting lived experience and leadership insight across CPI.





Investing in early careers and future talent

Alongside affinity-group-led inclusion activities, CPI continues to invest in long-term diversity through early-career pathways. CPI is a proud Platinum Member of the 5% Club, meaning at least 5% of CPI's workforce is in earn-to-learn roles such as apprenticeships, placements and graduate schemes. This reflects a sustained commitment to early career development, an investment that strengthens CPI's future skills pipeline, broadens access to innovation careers and supports the long-term diversity and sustainability of the organisation.

Affinity group STEM outreach includes:

- Sponsorship of the North East Women in Life Sciences event 2025, celebrating regional talent and career pathways.
- WiCPI hosting 125 students from 8 schools across the North East for International Women's Day 2026, enabling young

people to explore STEM careers, engage directly with CPI colleagues and see diverse role models represented across a range of different roles.

As we reflect on the progress made this year, CPI and the affinity groups remain committed to building on this momentum, continuing to embed inclusion at the heart of our culture and ensuring that diverse talent and perspectives can power innovation and impact in the years ahead.

Dr Amy Smith, Chief People Officer, CPI - "Our affinity groups play a vital role in helping us listen, learn and take meaningful action. They provide insight into lived experience that we would not otherwise have access to, and alongside our reverse mentoring programme, help us move from good intent to real change. Together, this work strengthens belonging, challenges our thinking and ensures our culture continues to evolve with our people".

Join the hundreds of companies making an impact with CPI

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LIVERPOOL

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MATERIALS
CHEMISTRY

UKRI Innovate
UK

Durham
University

QUALUS

DESCYCLE

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GSK

North East
Local Enterprise Partnership

CATAPULT
High Value Manufacturing

LiNa Energy

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SLN Sustainability

Applying sustainable design principles to shape a children's product built for circularity from day one

Design for sustainability

Circularity

Consumer products

The challenge

Many products are developed with sustainability considered too late in the process, but early decisions on materials, structure and lifespan determine much of a product's environmental impact. To address this, CPI worked with the High Value Manufacturing Catapult to develop the Design for Sustainability and Circularity (DfSC) framework, a structured approach to embedding environmental considerations into product development from the outset. We worked with SLN Sustainability to apply this framework, using it to guide the development of a reusable children's water bottle that could balance safety, usability, manufacturability and circularity from day one.

Our support and achievements

Using the DfSC framework as a structured decision-making tool, CPI carried out material selection, developed and assessed multiple design concepts, and performed early-stage environmental assessments to evaluate trade-offs across a broad range of impact categories. This evidence-based process utilised CAD models, design rationale and environmental insights to support confident down-selection of materials and processes, ensuring the final product concept was designed for sustainability, usability and manufacture at scale.

Impact

Children's products are rarely designed with end-of-life circularity in mind, despite their relatively short usage window as children quickly outgrow them. By applying the DfSC framework in practice, CPI and SLN Sustainability were able to assess critical factors influencing lifecycle impacts early and make informed trade-offs between environmental performance, safety and functionality.

This supported confident material and design decisions during prototype development, ensuring sustainability remained central without compromising product performance or user experience. More broadly, the project demonstrates how structured design-for-sustainability approaches, such as DfSC, can help early-stage businesses turn sustainability ambition into practical, evidence-based product decisions.

Strengthening our foundations for a net zero future



Louise Barker
Director of Impact, CPI

At CPI, our approach to Environmental, Social and Governance (ESG) is grounded in long-term thinking, responsibility and transparency. When we think about sustainability, we take a balanced and integrated view, recognising that delivering meaningful environmental and social value is underpinned by a resilient organisation. By maintaining strong foundations and a clear strategic focus, we can invest thoughtfully in the areas where we can make the greatest difference.

Over the past financial year, this perspective has shaped how we've approached ESG and sustainability across the organisation. Our focus has been on prioritising actions that deliver real impact,

concentrating effort where it matters most and where we're best placed to influence change. This targeted approach has enabled us to make progress while building the capability and clarity needed to support our longer-term ambitions.

A central theme of our work this year has been increasing visibility and transparency for our employees around the emissions associated with our operations. We've focused on the areas where we can make the most immediate difference: purchasing decisions, business travel and waste. By improving understanding across CPI of where our emissions arise, we're enabling more



informed conversations and empowering colleagues to play an active role in reduction efforts.

Alongside this, we took a major step in our environmental journey by looking more deeply at our transition to net zero and aligning our emissions reduction approach with science-based targets methodology. This has provided us with much greater clarity on our potential pathways to net zero and the actions required to get there. Importantly, this work has helped move our ambitions from high-level intent towards a clearer, evidence-based roadmap for change.

We've also begun looking more widely across CPI to strengthen and align environmental management practices. During the year, we started to review environmental management systems across our sites, identifying best practice already in place and seeking to harmonise a company-wide approach that reflects the best of the best. This lays the groundwork for more consistent, effective environmental management across CPI in the years ahead.

Our commitment to social impact continued alongside our environmental efforts. We maintained our support for STEM outreach initiatives, reflecting a cause that's closely aligned with our values and our role in fostering future innovation. We also supported the ongoing work of our internal affinity groups and their initiatives. A key highlight this year was welcoming 125 female students from local schools to our North East sites. These students had the opportunity to learn more about STEM careers and engage directly with female role models from across CPI, including engineers, scientists, professionals and leaders, helping to broaden aspirations and inspire the next generation.

As we look to the year ahead, a key focus will be deepening our understanding of where we can have the greatest impact through a targeted gap analysis. This will help us identify areas where further action and investment are needed and ensure our efforts remain focused and effective. To support this, we plan to establish employee focus groups across priority areas including purchasing, business travel, employee commuting and utilities. By engaging colleagues from across the organisation, we aim to harness practical insight, drive shared ownership and accelerate progress in the areas that matter most.

Taken together, this year has been about strengthening our foundations: ensuring our financial resilience, sharpening our focus, and building the knowledge and structures needed to deliver meaningful ESG impact. As we move forward, these efforts position us well to continue progressing responsibly, transparently and with purpose.



Find out more

uk-cpi.com/esg-at-cpi



Q&A with **Baroness Evans**

Non-Executive Director
CPI

Midway through 2025, we welcomed Natalie Evans, Baroness Evans of Bowes Park, to our Board as a Non-Executive Director. Baroness Evans brings a wealth of political and leadership experience to CPI, having served as Leader of the House of Lords from 2016 to 2022 – the longest-serving holder of the role in 70 years and its youngest-ever female leader. She has also held ministerial roles across education, justice, work, and pensions, and now serves on several national boards, including Salix and the London Marathon Foundation.

Can you tell us a bit about your background and career so far?

I've spent much of my career working in and around government and public policy. I joined the House of Lords in 2014 and served as a Minister in David Cameron's Government before becoming Leader of the House of Lords – a role I held for 6 years under both Theresa May and Boris Johnson. It was an extraordinary experience, giving me insight into how decisions are made and how policy connects with people and businesses across the country.

Before entering government, I led the New Schools Network, where I supported the establishment of hundreds of Free Schools across England. Earlier in my career, I worked with organisations like Policy Exchange and the British Chambers of Commerce, which deepened my understanding of how to bring together different sectors to make things happen.

How do you see your experience in government and policy contributing to your role as a Non-Executive Director at CPI?

One of the most valuable things I bring is an understanding of how policy and politics interact with business, academia and

innovation. CPI already plays a vital role in helping innovators and companies turn ideas into real-world impact, and I hope my experience will help us tell that story more effectively – both to government and to the wider public.

I'm also keen to help CPI navigate the policy environment, ensuring our expertise and impact are recognised at the highest levels. There's huge potential to raise awareness of the difference CPI makes to the UK economy, particularly in regions like the North East of England that are driving manufacturing, science, and innovation.

Innovation is often described as key to the UK's future prosperity. What opportunities and challenges do you see for organisations like CPI?

Innovation is by its nature challenging – some things will work brilliantly, others won't – but that's exactly why organisations like CPI are so important. The UK has world-class researchers and entrepreneurs, but we haven't always been as strong at taking their ideas through to commercial success. CPI helps to close that gap by providing the facilities, expertise and networks that small companies and start-ups need to scale their ideas.



The challenge, particularly in the current climate, is ensuring that the value of this work is understood and supported. Public finances are limited, so it's essential that we can demonstrate the return on investment – the jobs, growth and innovation that CPI enables – so that policymakers and funders continue to back this kind of activity.

Collaboration is central to CPI's model. What do you think makes cross-sector collaboration truly effective?

It really comes down to shared purpose, trust and communication. When people from government, industry and academia understand one another's goals and constraints, they can work together far more effectively. It's also about showing delivery – the tangible results of collaboration – because that builds confidence and attracts others to get involved.

Case studies and success stories are incredibly powerful in encouraging new partners to join the journey. They show that collaboration works, even for organisations that might be approaching it for the first time or from different perspectives.

What are you most looking forward to contributing as part of CPI's Board?

CPI is a forward-looking organisation that helps shape the technologies, businesses, and jobs of the future. I'm excited to support that mission by helping CPI strengthen its voice and visibility and by bringing my experience of policy, governance, and communication to the Board's discussions.

I'm also looking forward to supporting the team as they continue to build new partnerships, both across the UK and internationally, so that CPI can keep driving innovation, sustainability and growth for many years to come.





Global Health Labs and Global Access Diagnostics developed a concept for an instrument-free molecular diagnostic platform with a user experience akin to the rapid diagnostic tests used during the COVID-19 pandemic. However, we needed to help figure out how to scale up and CPI helped us with their team of engineers and material scientists to do just that. The work they did on identifying new, more consistent materials and creating bespoke tools enabled us to create functional prototypes for advanced testing, proving the capabilities of the platform.

Dr John Connelly

| Global Health Labs

GH+
Labs

Advancing UK innovation through global partnerships



Dr Arun Harish
Chief Strategy Officer, CPI

As global competition intensifies across life sciences and advanced manufacturing, international collaboration is becoming increasingly important to strengthening UK innovation, supply chains, and economic resilience.

Through strategic partnerships with India – one of the world's fastest-growing life sciences markets – CPI is helping UK companies access new commercial opportunities, accelerate innovation, and build international relationships that support long-term growth, while ensuring high-value innovation activity remains anchored in the UK.

This work spans industry engagement, collaborative innovation programmes, and government-backed partnerships designed to strengthen the UK's position as a global hub for advanced manufacturing and pharmaceutical innovation.

UK–India SME delegation: Opening global partnerships for UK innovators

In February 2026, CPI led a UK delegation of 20 high-potential biomanufacturing and pharmaceutical SMEs to India. Delivered in partnership with the British High Commission in India, the programme was designed to create tangible export opportunities for UK companies while positioning the UK as a partner of choice for global collaboration.

The visit provided SMEs with direct access to Indian industry leaders, research organisations, and government stakeholders through targeted meetings, site visits, and participation in major industry events. Engagements with organisations such as IKP Knowledge Park in Hyderabad enabled deeper scientific exchange and opened routes into India's innovation ecosystem.

India represents a significant commercial opportunity for UK businesses. As a global leader in pharmaceutical manufacturing, producing more than 60% of the world's vaccines and supplying



around a quarter of medicines used in the UK, it offers both a route to scale and a critical partner in strengthening supply chains.

For participating SMEs, the programme created a platform to explore collaboration, understand market dynamics, and build relationships that support international growth while maintaining a strong foundation of innovation within the UK.

CPI's role is to help ensure that while companies may access global markets, high-value activities such as innovation, design, and intellectual property remain anchored in the UK, supporting long-term economic growth

The Living Lab: Accelerating innovation through UK–India collaboration

A key outcome of CPI's work with India is the development of a pioneering "Living Lab" in partnership with CSIR–National Chemical Laboratory. This initiative is designed to accelerate the development and scale-up of sustainable pharmaceutical manufacturing processes.

Supported by both UK and Indian government funding, the Living Lab provides a real-world environment where companies can test and refine new approaches, helping to reduce the technical and commercial risks associated with scaling innovation.

By combining UK expertise with international collaboration, the model enables faster progress from development to deployment, particularly in areas such as process efficiency and emissions reduction. It also demonstrates how joint initiatives can translate policy ambition into practical, industry-led outcomes.



Strengthening UK capability and the High Value Manufacturing Catapult opportunity

CPI's work in India sits within a broader strategic framework, encompassing the UK–India Vision 2035, the Technology Security Initiative, and the UK–India Net Zero Innovation Partnership. Together, these initiatives are designed to strengthen supply chains, drive innovation, and enhance economic resilience across both nations.

As part of the High Value Manufacturing (HVM) Catapult, CPI plays a central role in ensuring these international partnerships deliver direct benefits to the UK economy.

This includes:

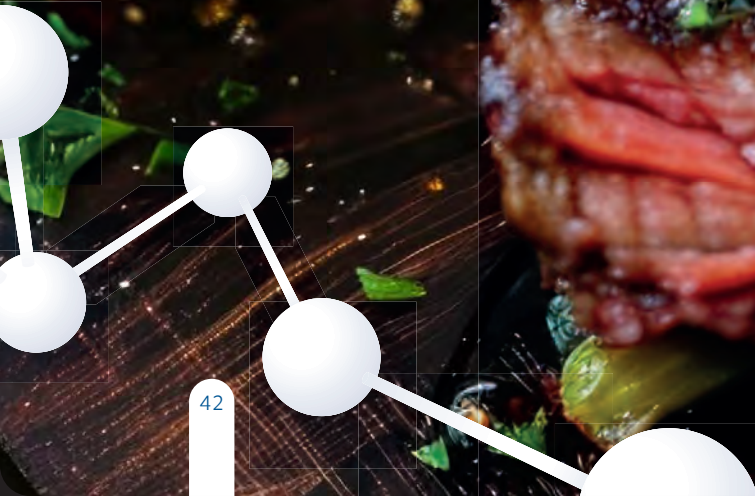
- Driving exports by helping UK companies access high-growth international markets.
- Attracting inward investment into UK facilities, capabilities, and talent.
- Strengthening domestic supply chains through global collaboration.
- Positioning the UK as a hub for advanced manufacturing and life sciences innovation.

These activities are not about moving capability overseas. Instead, they're about expanding the reach of UK innovation, enabling companies to scale globally while keeping the most valuable parts of the value chain – R&D, intellectual property, and high-skilled jobs – firmly in the UK.

Through the HVM Catapult network, this approach creates a multiplier effect: international partnerships bring new investment, new markets, and new collaborations back into the UK ecosystem, reinforcing national capability and competitiveness.

As global demand for advanced manufacturing and life sciences innovation continues to grow, CPI's international partnerships will play an increasingly important role in ensuring the UK remains globally connected, commercially competitive, and economically resilient.







MarraBio & Aelius Biotech

Creating affordable, animal-free food processing aids for cultivated meat

Cultivated meat

Bioprocessing

Commercialisation

The challenge

Cultivated meat offers a pathway to more resilient and adaptable food systems by decoupling protein production from traditional agricultural constraints. However, commercialisation remains constrained by the high cost of critical inputs such as bioactive proteins. MarraBio, a Newcastle-based spin-out, is addressing this challenge with Caf1, a novel polymeric protein engineered to mimic the function of conventional bioactive proteins while offering advantages, such as lower cost, greater potency, high thermal stability and bioinertness. To move Caf1 closer to food production, robust evidence was needed to demonstrate purity, safety, digestibility and regulatory suitability.

Our support and achievements

CPI worked with MarraBio and Aelius Biotech to improve Caf1's readiness for food-grade applications. CPI developed and applied analytical methods to assess protein quality and impurities, supporting compliance with regulatory requirements for human consumption, and helped optimise purification processes to reduce endotoxin levels. Using Aelius Biotech's *in vitro* gut models, the collaboration also demonstrated that Caf1 is degraded during digestion, generating key evidence of safety and regulatory suitability.

Impact

This project has accelerated the development of cost-effective, animal-free ingredients to make cultivated meat more commercially viable. CPI developed analytical and downstream purification methods to improve protein quality and reduce endotoxin levels; provided regulatory advice; and helped define a roadmap towards food-grade production.

This established suitability for human use and demonstrated the *in vitro* digestibility of Caf1, laying the groundwork for market adoption. Building on this, CPI Enterprises led an investment syndicate into MarraBio alongside Northstar Ventures, Maven Capital Partners and TCS Biosciences helping provide the support needed to accelerate commercial development.

This has driven further product development at MarraBio, including the launch of additional Caf1 variants, strengthening MarraBio's position in high-value sectors such as biomedical research and therapy, fields expected to reach multi-billion-dollar valuations by 2030.

MarraBio now plans to further evaluate the use of Caf1 in alternative food production systems, reducing reliance on traditional animal farming, and delivering environmental, economic and health benefits across the UK and beyond.

Building the UK's engineering biology future



Alex Smith
Director of Biotechnology, CPI

Engineering biology is often described as the next industrial revolution. But revolutions are not defined by discovery alone, they're defined by what can scale and grow.

The UK is not short of breakthroughs. Across healthcare, sustainable materials, food, and fuels, engineering biology is already reshaping how we design, make and deliver products. This has been thoroughly explored through an engineering biology-focused series of CPI's People in Innovation podcast, hosted by High Value Manufacturing Catapult Chair Steve Bagshaw CBE. The discussions here moved far beyond individual technologies to something much broader: a platform capability with the potential to transform entire industries.

Engineering biology is already reshaping manufacturing. The bigger issue now is whether the UK has the conditions in place to turn that momentum into industrial-scale growth and economic prosperity.

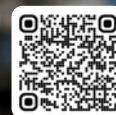
From breakthrough to bioeconomy

One of the clearest shifts in thinking is that engineering biology is an enabling capability that cuts across multiple industries rather than being confined to a single sector; it touches on everything from advanced therapies and diagnostics to bio-based materials, alternative proteins and low-carbon fuels.

This is the foundation of a new bioeconomy, where biological processes increasingly sit alongside, and in some cases replace, fossil-based manufacturing. The opportunity is significant, both economically and environmentally. But realising that opportunity depends on more than scientific progress. It depends on what happens next.

A familiar challenge: Strong science, limited scale

The UK has many of the ingredients needed to lead in engineering biology. It has a world-class research base, a growing start-up



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ecosystem, and a network of facilities that support early-stage development and pilot-scale activity.

Yet the pattern is familiar. As highlighted by the House of Lords Science and Technology Committee report *'Don't fail to scale: seizing the opportunity of engineering biology'*, the UK still finds it difficult to convert research leadership into lasting industrial and commercial advantage. Too often, companies develop here but deploy commercially elsewhere.

Across both policy discussions and industry conversations, the same barriers keep emerging. There's a funding gap between early research and commercial scale, limited availability of appropriate funding mechanisms to access the UK's proven network of scale-up facilities when it's most needed, and a difficult transition from pilot-scale activity to full manufacturing. Alongside this, there's a shortage of the skills required to operate at scale, particularly in bioprocessing and industrial biotechnology.

Taken together, these challenges create a system in which innovation can begin in the UK, but growth and long-term retention are harder to sustain.

What scaling actually involves

Part of the difficulty is that scale-up is often misunderstood. It's regularly seen as an engineering exercise, but in reality, it's just as much a commercial one. Success depends on whether a process can be delivered profitably, reliably and at a volume the market needs.

This requires a different way of thinking. Start-ups and SMEs must understand the size and accessibility of their market, how their product compares to existing alternatives, whether a reliable supply chain exists, and what level of production is needed to be commercially viable. These considerations sit alongside, rather than as an afterthought to, any technical challenges.

In engineering biology, these questions become even more complex. The relationship between product value and production volume varies dramatically, from high-value therapeutics produced in small quantities to low-margin commodities that require large-scale production. The challenge involves not only proving that a process works but that it works at scale in an economically and environmentally sustainable way.

Tools that test commercial viability and environmental impact early in development are becoming essential, helping organisations understand whether a promising process can also be practical and sustainable. They allow organisations to understand the trade-offs between cost, performance and environmental impact before committing to large-scale investment. At the same time, modelling tools can provide insight into how processes will behave at scale, reducing risk before moving into larger facilities.

Even so, there comes a point at which processes must move beyond the lab and pilot environments. It's here, in the transition to commercial manufacturing, that the risks become most acute.



Bridging the gap: Infrastructure and ecosystem

The UK has invested significantly in open-access facilities and translational infrastructure designed to support this transition to commercial manufacturing. Organisations such as CPI and

the wider High Value Manufacturing Catapult play an important role in helping companies de-risk scale-up, access expertise, and generate the data needed to attract further investment.

However, the existence of infrastructure alone doesn't automatically translate into easy access. Some of the existing funding mechanisms in the UK can make it difficult for SMEs to use these facilities at the scale and speed they need, leaving capability in place that's not always easily accessible.

If you speak with any of the operators of existing scale-up facilities in the UK, there will be a common message that they are under-utilised and have plenty of capacity to support more businesses to grow. The UK therefore does not face a capacity challenge, the challenge is accessibility, so instead of jumping straight into building more facilities, the focus must first be to enable companies to leverage the existing infrastructure through updated funding models that support progression from early development to commercialisation, ultimately helping retain high-growth potential companies in the UK.

Critically, we must then also make it appealing for those companies to stay and manufacture in the UK once they have scaled up, through addressing key barriers such as the cost of doing business and complex regulatory challenges, to create an environment that truly welcomes and supports innovative businesses and processes to manufacture their products here.

From capability to system: The role of clusters

If scale-up is a system challenge, then the solution must also be systemic. This is where ecosystems and clusters become increasingly important.

A recent example is the emerging Bio Industrial Cluster North, a partnership between York & North Yorkshire Combined Authority, Tees Valley Combined Authority, CPI, the University of York and Teesside University. The ambition is to create around 5,000 skilled jobs, grow the regional bioeconomy by £5 billion, and support the development of 100 bio-based start-ups.

More importantly, it brings together the elements required to move from innovation to industry. Scientific expertise, industrial capability, scale-up infrastructure, skills development and access to investment are aligned within a single ecosystem.



This kind of collaboration is essential in engineering biology, where value chains are complex and interconnected. From feedstocks and fermentation through to downstream processing and end-use applications, success depends on coordination across the entire system.

Clusters like this help anchor industries, creating the conditions for businesses to start, scale, and remain.

Building the conditions for scale

The UK has a clear opportunity to lead in engineering biology, but doing so will require deliberate action. CPI is helping to build the conditions needed to scale engineering biology by investing in world-class infrastructure, open-access facilities and specialist expertise. But alongside this, funding models need to better reflect the realities of scale-up, ensuring that companies can access infrastructure without unnecessary barriers. Stronger pathways are needed between pilot and commercial

manufacturing, alongside investment that bridges the gap between innovation and industrialisation.

At the same time, the workforce must evolve to meet the needs of a scaling industry. This means developing interdisciplinary skills that combine biology, engineering and data, as well as expanding training routes that prepare people for roles in manufacturing.

A clear and proportionate regulatory environment will also be critical, providing certainty for innovators while maintaining public trust. None of these challenges are new, but engineering biology brings them into sharper focus because of the pace of change and the scale of the opportunity.

The UK has been here before, with world-leading science, global potential, and economic value that's being realised elsewhere. Engineering biology offers the chance to do things differently. The capability, skills and infrastructure exist. The ecosystems are beginning to form. What matters now is whether these elements come together to help companies start, scale, and stay in the UK.



CPI has delivered an exceptionally strong and comprehensive piece of work alongside Scottish Enterprise, positioning Grangemouth as the site of place-based innovation for UK national impact around sustainable chemicals. The CPI team were professional, engaging, motivated and passionate, and we look forward to continuing the partnership for the ongoing development of Innovation Grangemouth.



Aileen Lamb

| Scottish Enterprise



CPI's analysis significantly improved our understanding of the protein, its properties, and our bioprocessing. The data gave us a clear path to food-grade production and Aelius' unique digestion model was crucial to demonstrating that Caf1 is degraded during digestion.

Dr Daniel Peters

| MarraBio



MARRABIO 





SMR

Find out more

uk-cpi.com/case-studies/rolls-royce-small-modular-reactors



Rolls-Royce Small Modular Reactor

Testing manufacturing configurations for the next generation of nuclear energy

Nuclear energy

Factory acceptance testing

The challenge

Small modular reactors (SMRs) offer a compact, scalable way to deliver reliable, low carbon nuclear power while reducing the time, cost and risk of deployment. For Rolls-Royce SMR, every module must undergo rigorous Factory Acceptance Testing (FAT) to verify quality and performance before on-site assembly. Defining an effective, repeatable FAT approach for a modular build was essential to ensuring manufacturability and avoiding delays during deployment.

Our support and achievements

CPI worked with Rolls-Royce SMR to define and demonstrate a practical approach to the specific challenges of modular Factory Acceptance Testing, and then validate the proposed methodology using a custom built small-scale demonstrator and representative FAT facility. This work helped to establish a versatile FAT methodology applicable across different module designs, identify key design interventions, and inform test bay requirements to support effective factory-based testing.

Impact

CPI's work has helped prepare Rolls-Royce SMR for the critical FAT process by defining an approach that can be applied to different module designs and identifying and validating key module design interventions to enable effective testing. This will help Rolls-Royce SMR conduct thorough FAT on fully assembled modules *in situ*, minimising issues during the final on-site build and accelerating the deployment of their SMR technology.

The small modular reactors will operate at very high levels of availability for at least 60 years, providing long-term, stable, clean energy. They will support the decarbonisation of industry and the production of clean fuels to ultimately accelerate the UK's transition to a diversified, greener energy system.

Building the UK's battery manufacturing capability



Dr Keri Goodwin
Chief Technologist, CPI

Battery technologies will be central to the UK's transition to net zero, underpinning the electrification of transport, supporting renewable energy storage, and enabling the wider decarbonisation of industry. Yet despite the UK's strength in battery research and innovation, a longstanding gap in industrial-scale development infrastructure has limited the UK's ability to translate promising technologies into commercial manufacturing opportunities.

To address this challenge, CPI and WMG at the University of Warwick, both part of the High Value Manufacturing Catapult, launched the Advanced Materials Battery Industrialisation Centre (AMBIC) in June 2025, following an 18-month capital and infrastructure project, through a £12 million investment from UK Research and Innovation's Faraday Battery Challenge.

AMBIC was established to address a critical gap in the UK battery ecosystem: the lack of domestic infrastructure to scale and validate advanced battery materials between laboratory development and commercial production.

Without access to industrially-relevant pilot-scale facilities, many UK battery innovators have historically been forced to seek overseas manufacturing partners to scale novel materials and validate performance. This introduces significant cost, delays development, increases intellectual property risk, and weakens the UK's ability to retain downstream manufacturing and supply chain value. AMBIC provides a strategic national capability to overcome this barrier.

Operating across CPI's NETPark facility in Sedgefield, County Durham and WMG's battery development facilities in Coventry, the centre enables companies to scale advanced battery materials from laboratory quantities to industrially-relevant pilot batches, before validating them in prototype cells. This integrated powder-to-cell approach gives innovators the technical and commercial evidence needed to secure investment, develop offtake agreements, and progress towards market deployment.





By reducing the risks associated with battery scale-up, AMBIC is helping accelerate the commercialisation of next-generation battery technologies while strengthening the UK's position in a rapidly expanding global market. And its impact extends beyond individual projects.

Battery demand is expected to increase significantly over the coming decade as electric vehicles, grid-scale storage, and wider electrification drive global market growth. Capturing economic value from this transition will depend not only on battery cell manufacturing, but on the development of robust domestic supply chains for the high-value materials that underpin battery performance.



Cathode, anode, and electrolyte materials account for a significant share of battery value, with cathode materials alone accounting for around half of the battery cell cost in many lithium-ion chemistries. By enabling these materials to be developed and scaled in the UK, AMBIC helps create the conditions for more of that value to be retained domestically through manufacturing, inward investment and supply chain growth.

In doing so, the centre supports the UK's broader ambitions to build strengthened capability in strategically important advanced manufacturing sectors and reduce reliance on overseas pilot-scale processing and validation infrastructure.

AMBIC also strengthens resilience across the UK battery supply chain. As global competition intensifies for critical minerals and battery manufacturing capacity, nations with domestic capability to develop, validate and industrialise battery materials will be better positioned to secure investment and respond to future supply chain disruption. AMBIC equips the UK with the infrastructure needed to support this strategic capability, enabling companies to scale both established and emerging chemistries, including lithium-ion, sodium-ion and solid-state battery materials.

Alongside economic and industrial benefits, AMBIC supports the UK's sustainability ambitions. The centre enables innovators to assess the environmental and economic viability of battery technologies before full commercial deployment, combining pilot-scale technical development with life cycle assessment and techno-economic analysis. This helps ensure that emerging battery technologies are designed for both performance and sustainability from the outset.

AMBIC also supports the development of circular-economy solutions, including battery recycling and critical-mineral recovery processes, helping build a more sustainable and resource-efficient battery ecosystem for the UK.

Importantly, the centre operates as an open-access national asset, making advanced battery development infrastructure available to organisations of all sizes, from university spin-outs and SMEs to large industrial manufacturers. By lowering barriers to access, it broadens participation in the UK battery ecosystem and helps accelerate innovation across the sector. Significant national and international interest has been generated since AMBIC launched in June 2025, with numerous projects in delivery and development.

AMBIC demonstrates the strategic value of investing in translational infrastructure that bridges the gap between research excellence and industrial deployment. By providing the infrastructure, expertise and collaborative environment needed to translate battery breakthroughs into commercial reality, AMBIC is creating the conditions for more value to be retained within the UK economy from the energy transition, strengthening industrial resilience, and building the supply chains needed for a net-zero future.



Seven steps from breakthrough to scale:

The ingredients behind Pragmatic Semiconductor's success



Dr Tom Taylor
Director of Future Business, CPI

There is no single moment that defines success in deep-tech manufacturing. No overnight breakthrough, no instant leap from lab to factory floor. Instead, success is built through a series of deliberate decisions about technology, timing, partnerships, and place.

Pragmatic Semiconductor's journey from early innovation to world-leading, high-volume semiconductor manufacturing offers a powerful example of how those decisions can come together. At the heart of that journey sits a long-term partnership with CPI, which played a critical enabling role by helping Pragmatic turn ambition into scalable, commercial reality.

Together, our success story highlights the ingredients required to scale breakthrough innovation in a complex and strategically important industry.

Ingredient one: A problem worth solving

Pragmatic Semiconductor was founded to address a structural challenge in the semiconductor industry. Traditional silicon chips, while powerful, are rigid, costly and resource intensive to manufacture, limiting where intelligence can be deployed and slowing the next wave of connected products.

Pragmatic's answer was a fundamentally different approach. Its proprietary flexible integrated circuits, FlexICs, are ultra-thin, robust and low-cost, designed to embed intelligence directly into everyday items. By embedding FlexICs into smart packaging, consumer products, and wearable healthcare applications, data can be created, captured, and acted upon throughout a product's lifecycle.

This delivers powerful brand engagement opportunities with consumers, driving loyalty and preference, supporting recycling and circular economy initiatives, and cultivating trust by providing proof of authentication, without impacting on brand aesthetics.

Crucially, Pragmatic's ambition extended beyond invention. As the company set out to develop its innovative semiconductors, it



Watch video

youtu.be/Zuv77iIMnhM



sought to create a manufacturing model capable of delivering this technology at scale: affordably, sustainably and at pace.

Ingredient two: The right partner at the right moment

For many deep-tech companies, the most challenging phase lies between early proof-of-concept and manufacturable reality. This is where promising technologies often stall – not because the science fails, but because scaling happens at the wrong time or without the right support.

From its earliest stages, Pragmatic recognised the importance of finding a partner that understood this transition. CPI joined the journey as a long-term innovation partner providing facilities, technical expertise and manufacturing insight to help de-risk development and shape a scalable production approach.

As David Moore, CEO of Pragmatic Semiconductor, explains: “I think CPI certainly has played a key role in us being able to develop the technology, build on the foundations, and develop

the proof points to be able to move from that start-up phase into that scale-up phase.”

This collaboration allowed Pragmatic to iterate, test and refine its manufacturing processes before committing to volume, ensuring that scale, when it came, would be sustainable and repeatable.

Ingredient three: Innovation clusters that accelerate progress

Partnerships do not exist in isolation. Pragmatic’s collaboration with CPI was strengthened by its location within a wider innovation ecosystem, including NETPark in the North East of England.

Innovation clusters like NETPark play a vital role in enabling scale-up, bringing together research, manufacturing expertise, infrastructure and talent in close proximity. This environment accelerates collaboration, shortens development cycles and lowers the barriers between innovation and industrialisation.

For Pragmatic, operating within this ecosystem meant access not only to CPI's capabilities, but also to a network of skills and partners that supported rapid learning and progress, reinforcing the value of place as an ingredient in success.

Ingredient four: Knowing when to scale, and when not to

In semiconductor manufacturing, scale amplifies both success and failure. Scaling too early can lock in inefficiencies and destroy capital; scaling too late can mean missing the market altogether.

Through its partnership with CPI, Pragmatic took a disciplined approach to moving from low-TRL invention toward manufacturing readiness. By working with CPI, industry-standard



techniques could be adapted to support Pragmatic's new technologies, enabling processes to be stress-tested, yields improved and repeatability proven ahead of volume expansion.

This careful sequencing ensured that when Pragmatic did scale, it did so from a position of strength, with manufacturing systems, sustainability principles and commercial credibility already in place.

Ingredient five: Investment that follows readiness

Investor confidence is rarely driven by ambition alone. In deep-tech manufacturing, it follows evidence; proof that a technology can be produced reliably, sustainably and at scale.

By de-risking manufacturing and demonstrating commercial readiness, Pragmatic was able to attract increasing levels of private investment over time. This culminated in a landmark Series D funding round in 2023, raising £182 million – the largest European venture investment ever secured by a European semiconductor company.

This funding represented validation of foundations already built and enabled Pragmatic to accelerate expansion with confidence.

Ingredient six: Place, purpose and UK leadership

In 2024, Pragmatic took a defining step with the opening of Pragmatic Park in Durham, in the North East of England. Built on a 59,000-square-metre brownfield site, the facility is home to the UK's first 300mm semiconductor fabrication lines and one of the most advanced manufacturing sites of its kind in the country.

The decision to scale manufacturing in the UK reflects a clear commitment to domestic capability, supply-chain resilience and regional growth. Pragmatic Park has created high-value jobs, attracting specialist talent to the North East and strengthening the UK's position in a strategically critical industry.

Innovation clusters again played a role here, with proximity to NETPark and CPI reinforcing the region's ability to support advanced manufacturing at scale.

Ingredient seven: Sustainability as a differentiator

Sustainability has been embedded into Pragmatic's manufacturing approach from the outset. Compared with traditional silicon fabrication, FlexIC production uses significantly less energy and water, and fewer hazardous chemicals, offering a lower-impact alternative without compromising performance.



As environmental considerations increasingly shape policy, funding and procurement decisions, this sustainable-by-design approach has become a differentiator, aligning Pragmatic's growth with net zero ambitions and responsible industrial development.

Real-world impact at scale

Today, Pragmatic's FlexIC technology is enabling intelligence to be embedded into millions of everyday products. By bridging the physical and digital worlds, it supports smarter, more resilient supply chains and a new generation of Internet of Things applications – also known as IoT or “smart objects” – across consumer, industrial and healthcare sectors.

This is no longer a future vision, but a commercial reality, delivered at volume from UK-based manufacturing.

What this proves

Pragmatic Semiconductor's journey demonstrates that scaling deep-tech innovation is not about a single leap, but about assembling the right ingredients in the right order: a meaningful problem, disciplined scale-up, sustained investment, strong partnerships and the right ecosystem.

For CPI, the collaboration stands as clear evidence that our long-term innovation partnership model works. Success is not measured by dependency, but by graduation, enabling companies to move confidently into the market, fully equipped to scale.

Together, we have shown what is possible when innovation, manufacturing expertise and strategic timing align, strengthening UK leadership in advanced, sustainable semiconductor manufacturing, and providing a blueprint for future scale-ups to follow.



Global Health Labs

Designing a sensitive tuberculosis test for low-resource settings

Tuberculosis diagnostics

Point-of-care testing

Global health

The challenge

Tuberculosis (TB) remains one of the world's deadliest infectious diseases, with early symptoms that are often vague and difficult to diagnose. In many low resource settings, testing relies on centralised laboratories or distant clinics, requiring long travel times or complex sample transport that slow diagnosis and treatment. Global Health Labs, backed by the Gates Foundation, set out to address this by developing a self contained, tongue-swab-based molecular test with the ease of use of a lateral flow device, capable of delivering reliable results at the point-of-care with minimal resources.

Our support and achievements

CPI worked with Global Health Labs to support the design, materials selection and prototyping of an instrument-free molecular diagnostic. CPI manufactured flexible printed heaters, evaluated materials to control fluid flow, and assembled layered prototype cassettes using bespoke tooling. This work enabled the creation of functional demonstrator devices, ready for laboratory testing and pilot production, helping take the technology from concept to prototype.

Impact

This project is redefining what's possible for point-of-care diagnostics in underserved communities. By delivering molecular-level accuracy in a compact, low-cost format, the test has the potential to dramatically improve TB detection – enabling earlier treatment, better patient outcomes, and reduced risk of transmission in settings where traditional diagnostics can't reach.

CPI's contribution helped Global Health Labs progress from concept to a validated prototype, solving complex engineering challenges, including thermal control and fluid management. Our work accelerated the product towards field trials and commercial handover, and the project is now advancing with further support from the Gates Foundation.

By overcoming the barriers to scalable, decentralised diagnostics, this partnership is helping build a future where high-quality TB testing is accessible, affordable, and capable of improving health outcomes for communities most affected by the disease.



cpi

let's
innovate
together

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to find out about CPI.



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can also discover our year of
amazing innovation.



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02785-260619-04



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